Additional File 4. The Theoretical Domains Framework (TDF) with definitions and component constructs

TDF domain	TDF domain	Component constructs
1. Knowledge	An awareness of the existence of something	Knowledge (including knowledge of conditions/scientific rationale) Procedural knowledge Knowledge of task environment
2. Skills	An ability or proficiency acquired through practice	Skills Skills development Competence Ability Interpersonal skills Practice Skill assessment
3. Social/Professional Role and Identity	A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting	Professional identity Professional role Social identity Identity Professional boundaries Professional confidence Group identity Leadership Organizational commitment

4. Beliefs about Capabilities	Acceptance of the truth, reality or validity about an ability, talent or facility that a person can put to constructive use	Self-confidence Perceived competence Self-efficacy Perceived behavioral control Beliefs Self-esteem Empowerment Professional confidence
5. Optimism	The confidence that things will happen for the best or that desired goals will be attained	Optimism Pessimism Unrealistic optimism Identity
6. Beliefs about Consequences	Acceptance of the truth, reality or validity about outcomes of a behavior in a given situation	Beliefs Outcome expectancies Characteristics of outcome expectancies Anticipated regret Consequents
7. Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus	Rewards (proximal/distal, valued/not valued, probable/improbable) Incentives Punishment Consequents Reinforcement Contingencies Sanctions

8. Intentions	A conscious decision to perform a behavior or a resolve to act in a certain way	Stability of intentions Stages of change model Trans-theoretical model and stages of change
9. Goals	Mental representations of outcomes or end states that an individual wants to achieve	Goals (distal/proximal) Goal priority Goal/target setting Goals (autonomous/controlled) Action planning Implementation intention
10. Memory, Attention and Decision Process	The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives	Memory Attention Attention control Decision making Cognitive overload/tiredness
11. Environmental Context & Resources	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence and adaptive behavior	Environmental stressors Resources/material resources Organizational culture/climate Salient events/critical incidents Person × environment interaction Barriers and facilitators
12. Social Influences	Those interpersonal processes that can cause individuals to change their thoughts, feelings or behaviors	Social pressure Social norms Group conformity Social comparisons Group norms Social support

		Power
		Intergroup conflict
		Alienation
		Group identity
		Modelling
13. Emotion	A complex reaction pattern, involving experiential, behavioral, and physiological elements, by which the individual attempts to deal with a personally significant matter or event	Fear
		Anxiety
		Affect
		Stress
		Depression
		Positive/negative affect
		Burn-out
14. Behavioral Regulation	Anything aimed at managing or changing objectively observed or measured actions.	Self-monitoring
		Breaking habit
		Action planning

TDF = Theoretical Domains Framework

Reference:

Atkins L, Francis J, Islam R, O'Connor D, Patey A, Ivers N, et al. A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems. Implement Sci. 2017;12(1):77